Find the total force on the bottom of a closed tank in which contains 0.700 m height of water (sg = 1.00), 0.500 m height of oil (sg = 0.860), and some air at the top of the tank with 30.0 kPa pressure. The bottom dimension of the tank is 2.00 m by 1.50 m.
Solution:

\[ F_T = F_{Air} + F_{Oi} + F_{Water} \]

\[ F_{Air} = P \cdot A = (30.0 \text{ kPa})(2.00m)(1.50m) = 90.0\text{KN} \]

\[ F_{Oi} = P \cdot A = (0.860)(9.81\text{KN/m}^3)(0.50m)(2.00m)(1.50m) = 12.7\text{ KN} \]

\[ F_{Water} = P \cdot A = (1.00)(9.81\text{KN/m}^3)(0.70m)(2.00m)(1.50m) = 20.6\text{KN} \]

\[ F_T = F_{Air} + F_{Oi} + F_{Water} = 90.0 + 12.7 + 20.6 = 123.3\text{ KN} \]